

APPRAISAL OF THE QUALITY OF
GROUND WATER IN THE HELENA VALLEY,
MONTANA

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations 32-73

Prepared in cooperation with
Lewis and Clark County Commissioners and
Lewis and Clark County Planning Board



BIBLIOGRAPHIC DATA SHEET		1. Report No.	2.	3. Recipient's Accession No.	
4. Title and Subtitle APPRAISAL OF THE QUALITY OF GROUND WATER IN THE HELENA VALLEY, MONTANA				5. Report Date September 1973	
7. Author(s) K. R. Wilke and D. L. Coffin				8. Performing Organization Rept. No. WRI 32-73	
9. Performing Organization Name and Address U.S. Geological Survey P. O. Box 1696 Helena, Montana 59601				10. Project/Task/Work Unit No.	
				11. Contract/Grant No.	
12. Sponsoring Organization Name and Address U.S. Geological Survey P. O. Box 1696 Helena, Montana 59601				13. Type of Report & Period Covered Final	
				14.	
15. Supplementary Notes Prepared in cooperation with Lewis and Clark County Commissioners and Lewis and Clark County Planning Board					
16. Abstracts <p>Analyses of ground-water samples from the Helena valley in west-central Montana show that nitrate (as nitrogen) concentrations ranged from less than 0.1 to 6.3 mg/l (milligrams per liter) and that the median value was 0.9 mg/l. Chloride concentrations ranged from 1.4 to 120 mg/l, and the median value was 8.4 mg/l. The areal distribution of nitrate indicates that the sources of nitrate are in the valley, and that areas of high nitrate concentrations coincide with areas of dense population.</p> <p>Results of bacteriological analyses of 65 samples of ground water indicate that coliform bacteria were absent.</p> <p>Ten water samples analyzed for trace element content had a few moderately high concentrations of arsenic, copper, lead, and zinc.</p> <p>With few exceptions, ground water in the Helena valley is of good quality and mostly a calcium bicarbonate type. Despite locally high dissolved-solids content, the water is suitable for drinking, according to U.S. Public Health Service standards.</p>					
17. Key Words and Document Analysis. 17a. Descriptors <p>*Ground-water movement, *Nitrates, *Septic tanks, *Sewage effluent, Nutrients, Water levels, Water quality, Heavy metals, Bacteria, Public health, Montana</p>					
17b. Identifiers/Open-Ended Terms <p>Helena valley</p>					
17c. COSATI Field/Group 05B					
18. Availability Statement <p>No restriction on distribution</p>				19. Security Class (This Report) UNCLASSIFIED	
				20. Security Class (This Page) UNCLASSIFIED	
				21. No. of Pages 36	
				22. Price	